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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,242	06/06/2000	Lloyd Alan Poston	072228.0102	8053

7590 08/04/2004

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EXAMINER

ANDERSON, MATTHEW D

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/588,242

Applicant(s)

POSTON, LLOYD ALAN

Examiner

Matthew D. Anderson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10 and 12-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 and 12-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the amendments filed 7/13/04:

claims 9, 12, and 20 have been amended;

claim 11 has been canceled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1, 3, 5-13, 20-23, 25, 27-33, and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Golding (US Patent # 6,180,063).

4. With respect to claims 1, 9, and 20, Golding discloses:

a backup system with an input for receiving mass storage commands comprising data and an address at which data is to be written, as shown by the write messages (53 and 55) in figure 1 containing region addresses and data, and as recited in column 2, lines 48-53;

a source of time information, by teaching in column 3, lines 45-55, as shown by a timestamp, and in column 4, line 54 of a local clock;

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a circuit for associated a write command with the time information to create a log entry, by teaching in column 4, lines 53-55, that the processor sends the update message to the disk to obtain a timestamp from its local clock;

a storage for accepting, at a log assisted disk, log entries from the circuit, wherein the circuit queues log entries and periodically sends/writes one or more queued entries to the storage/log file, as shown in the disk (20 or 30) in figure 1.

5. With respect to claims 3, 13, 27, and 37, Golding discloses:

a network connection for accepting entries, by teaching in column 1, lines 13-15, multiple computers connected via a network;

a server for accepting log entries from the network and for providing the log entries to a log file, by teaching in column 1, line 23, of using a network server to recover from faults.

6. With respect to claim 5, Golding discloses that the mass storage address comprises a sector address, as recited in column 3, lines 28-29.

7. With respect to claims 6-7, 12, and 28,, Golding discloses that the storage for accepting log entries is the mass storage, with the mass storage being a hard disk, as shown by the disk 20 in figure 1.

8. With respect to claims 8, 10, and 29-30, Golding discloses the storage for accepting log entries to be a non-volatile RAM based virtual disk, as recited in column 7, line 43, and column 8, line 45.

9. With respect to claims 9 and 20, Golding discloses storing the log file in a local mass storage different from the mass storage to be backed up, by teaching in column 1, lines 24-26,

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that each time a computer writes a record file on the disk, the same record must also be written to the mirrored disk.

10. With respect to claims 21 and 33, Golding discloses:

a backup system for enabling continuous backup of computer data stored at a computer to a mass storage system, by discussing in column 7, lines 10-20 of having two copies of the disk data;

an operating system for receiving write commands from an application installed on the computer and for converting each received write command into a sector write having a sector address and sector data, by teaching in the abstract that the controller receives write messages from processors coupled to the controller. Each write message includes a data segment to be written to the storage medium at a specified address, and coordination information specifying a timestamp, and the addresses of other data records on other storage systems that were written in same write operation;

a source of time information, as recited in column 4, lines 53-55;

a log-assisted disk for processing sector writes sent to the log-assisted disk by the operating system, said processing including receiving the sector writes, accumulating/queuing the sector writes, and associating each sector write with the time information, thereby creating a log entry, by teaching in figure 1 and column 4, lines 53-67, the a write process bearing a timestamp is stored in the log;

means for communicating the log entry to the storage, wherein the operating system, the source of the time information, the log-assisted disk, and the communicating means are in

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electrical communication with each other within a computer, as shown by the communication network connections in figure 1.

11. With respect to claims 22 and 36, Golding discloses the storage for accepting log entries being located within the computer, as shown in figure 1.

12. With respect to claims 23 and 35, Golding discloses the storage for accepting log entries is in network communication with the computer, as shown by the communication network connections in figure 1.

13. With respect to claim 25, Golding discloses the storage for accepting log entries receives log entries from multiple computers in a network, as recited in column 1, lines 13-15

14. With respect to claims 31-32, Golding discloses the mass storage is a nonvolatile hard disk, as shown by the disk 20 in figure 1.

15. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Thatte (US Patent 5,008,786).

16. With respect to claim 17, Thatte discloses recreating a mass storage device by accepting a snap shot of the state of the mass storage taken at a point in time earlier than the given time, accepting log entries having timestamps later than the pint in time of the snapshot, writing the snapshot to a storage device, writing the log entries, from the time of the snapshot, to the storage device, and terminating the writing of the log entries when the time stamp of the log entry is equal to the given time, by teaching in column 17, lines 18-33, rolling back the system to the state at the last checkpoint (snapshot), and restoring entries from the log by using the snapshot

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object while expunging records with timestamps greater than the time of the snapshot, and also teaching in figures 5-7 of comparing checkpoint timestamps with sibling timestamps to use in restore operations.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 4 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golding.

19. The difference between Golding and the claims is the claims recite the network being the Internet. However, the specific use of a network such as the Internet instead of a local network, does not have a disclosed purpose nor are disclosed to overcome any deficiencies in the prior art. As such, the network may have been embodied in a number of manners, such as an LAN or WAN. Accordingly, it would have been an obvious matter to one skilled in the art to utilize the backup log system of Golding wherein the network is a local network, as disclosed supra, since applicant has not disclosed that a wide area network, as opposed to other networks, overcomes a deficiency in the prior art or is for any stated purpose.

20. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Golding and Yoshida (US Patent # 5,943,672).

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21. Golding teaches all other limitations of the parent claims, but fails to specifically disclose receiving a status from the network, testing the status to determine if network traffic is low, and coupling the log file into the network dependent on the network traffic. Yoshida teaches in table 5 located in column 5, of the access log records containing traffic status indicators.

22. It would have been obvious to one of ordinary skill in the art, having the teachings of Golding and Yoshida before him at the time the invention was made, to modify the backup log entries in the logged backup system taught by Golding, to include network traffic indicators, as with the logged backup system of Yoshida, in order to quickly deal with a change in network traffic without requiring human intervention, as taught by Yoshida.

23. Claims 15 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golding and Hubis *et al.* (US Patent # 6,182,198).

24. Golding teaches all other limitations of the parent claims, but fails to specifically disclose taking a snapshot of the mass storage to be backed up prior to accepting write commands. Hubis *et al.* teach in the abstract, processing write operations after initializing the snapshot.

25. It would have been obvious to one of ordinary skill in the art, having the teachings of Golding and Hubis *et al.* before him at the time the invention was made, to modify the backup log entries in the logged backup system taught by Golding, to process the write operations after a snapshot, as with the logged backup system of Hubis *et al.*, to provide the state of the memory system at a given time, without further write accesses, from which the system can be recovered following a future fault, as taught by Hubis *et al.*.

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26. Claims 16 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golding and Belsan *et al.* (US Patent # 5,403,639).

27. Golding teaches all other limitations of the parent claims, but fails to specifically disclose determining a sector to be written to from the most recent log entry, searching for log entries having an earlier timestamp which write to the same address, and deleting any log entries with an earlier timestamp which write to the same address as the most recent log entry. Belsan *et al.* teach in column 6, line 65-column 7, line 41, generation data groups and discarding the oldest version of a data record when a new version is created.

28. It would have been obvious to one of ordinary skill in the art, having the teachings of Golding and Belsan *et al.* before him at the time the invention was made, to modify the backup log entries in the logged backup system taught by Golding, to delete older log entries associated with the same address as the most recent entry, as with the logged backup system of Belsan *et al.*, in order maintain coherency in the system by only having the most recently written data be associated with an address, as taught by Belsan *et al.*.

29. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thatte and Golding.

30. Thatte teaches all other limitations of the parent claims, but does not specifically disclose accepting log entries from a network connection. Golding discloses in column 1, lines 13-15, a logged backup memory system with multiple computers connected via a network.

31. It would have been obvious to one of ordinary skill in the art, having the teachings of Thatte and Golding before him at the time the invention was made, to modify the recoverable

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memory with log entries taught by Thatte, to be interconnected over a network, as with the logged backup system of Golding, to provide wide-spread storage and access capabilities across many associated devices, as taught by Golding.

32. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thatte and Golding.

33. The difference between Thatte and Golding and the claims is the claims recite the network being the Internet. However, the specific use of a network such as the Internet over an local network, does not have a disclosed purpose nor are disclosed to overcome any deficiencies in the prior art. As such, the network may have been embodied in a number of manners, such as an LAN or WAN. Accordingly, it would have been an obvious matter to one skilled in the art to utilize the backup log system of Thatte and Golding wherein the network is a local network, as disclosed supra, since applicant has not disclosed that a wide area network, as opposed to other networks, overcomes a deficiency in the prior art or is for any stated purpose.

34. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Golding and Beeler, Jr. (US Patent # 5,819,020).

35. Golding teaches all other limitations of the parent claims, but fails to specifically disclose the communication means being a network interface card. Beeler, Jr. teaches in figure 2 of a network interface card used in the logged backup system, as shown in figure 17.

36. It would have been obvious to one of ordinary skill in the art, having the teachings of Golding and Beeler, Jr. before him at the time the invention was made, to modify the logged

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backup system taught by Golding, to include a network interface card, as with the logged backup system of Beeler, Jr., to introduce the capability to mirror transactions across a network, as taught by Beeler, Jr. in column 2, lines 30-35.

Response to Arguments

37. Applicant's arguments filed 7/13/04 have been fully considered but they are not persuasive.

38. With respect to claims 1, 21, and 33, the Applicant alleges that Golding discloses that a processor and not the controller creates the log entries in the log. It appears the disagreement stems from when, exactly, the log entry is "created." The Examiner's position is that the log entry is not actually "created" until the controller takes the write messages and stores them in the log, i.e., they are not a log entry until stored in the log. Although the processor does provide the write message and time stamp, it is the controller actually forms them into a log entry by storing them into the log.

39. With respect to claims 9 and 20, figure 1 of Golding appears to clearly show a log assisted disk. And as stated in the rejection of now-canceled claim 11, Golding discloses storing the log file in a local mass storage different from the mass storage to be backed up, by teaching in column 1, lines 24-26, that each time a computer writes a record file on the disk, the same record must also be written to the mirrored disk.

40. With respect to claim 17, the Applicant alleges that Thatte does not disclose writing the log entries having timestamps later than the point in time of the snapshot. The arguments seems to be based on that after the time of the initial archive, a snapshot is not written again to the

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archival medium. Column 17, lines 43-61, discusses a checkpoint archival process. If a disk failure occurs, a new disk can replace the damaged one, and the archived state can be used to initialize the new disk. Only those pages of the last checkpointed state that are dirty with respect to the last archived state need be copied to the archival medium. In other words, the above archived state corresponds to the claimed snapshot, and the checkpoint state is the claimed given time. The dirty data occurred between the initial archived snapshot and the current checkpoint (i.e., timestamps after the snapshot and before the given time). Therefore, newly modified data (at the current checkpoint state) that was not in the archived state is copied to the archival medium. The claims never mention writing the original snapshot again, only new data. Indeed, the previous archive is not again written, but data written/timestamped after the initial archive and before the current checkpoint are written the archival medium.

Conclusion

41. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar backup log systems.

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Anderson whose telephone number is (703) 306-5931. The examiner can normally be reached on Monday-Friday, 2nd Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Matthew D. Anderson', with a long horizontal flourish extending to the right.

Matthew D. Anderson
July 28, 2004